

June 28, 2013

To: Executive Board

Subject: **Electric Bus Charger Upgrade**

Recommendation

Receive and file the funding source update on the Electric Bus Charger Upgrade.

Analysis

At the February 2013 Executive Board Meeting, the Board authorized the Executive Director to negotiate final contract terms and conditions and award a contract to Proterra, Inc. in the amount of \$333,500 to upgrade the Ecoliner electric bus charging infrastructure using TIGGER II funds.

In 2010 Foothill Transit was awarded the largest federally-funded clean transportation grant in the nation under the Transit Investments for Greenhouse Gas and Energy Reduction (TIGGER) II program. Initial plans when the grant was written were to use this grant to purchase nine (9) new electric buses and upgrade the existing Ecoliner electric bus charging infrastructure. Since the initial grant application, Foothill Transit's administrative team has reevaluated the charging station upgrades that were envisioned in the TIGGER II grant application and determined them to be no longer needed. Instead, it is recommended that Foothill Transit participate in the purchase of Eaton chargers and transition away from the current AeroVironment (AV) chargers.

Proterra currently subcontracts with AV for specific charging infrastructure maintenance support services at the Pomona Transit Center (PTC); and while the charging station technology itself has generally met performance expectations thus far, when issues do arise, support from AV has been extremely intermittent, slow and limited. Uptime on the charging station hovers around 90 percent and most downtime is related to "Bluetooth" wireless technology communication issues, as the PTC is heavily frequented by the public and interference is common. Proterra is resolving service response and these technology issues in its current and future electric bus deployments by moving to charging technology manufactured by Eaton. Enhancements to support the full electrification of Line 291, while not eligible for funding through the TIGGER II grant, are presented here for the Executive Board's consideration.

In addition to the recommended change in scope of the charging station upgrade, the per-bus price of Proterra's Ecoride has fallen as the company has streamlined their manufacturing and supply chain process. In light of this, Foothill Transit's administrative team approached the Federal Transit Administration (FTA) to determine whether the purchase of additional electric buses using the TIGGER II funds would be allowed. The FTA has approved Foothill Transit's procurement of up to 12 electric buses instead of

the initial plan of procuring nine buses using the TIGGER II funds. As such, it is recommended that Foothill Transit use its local funds to upgrade the current charging infrastructure to increase maintenance support and provide greater long-term technological capacity and reliability.

The upgrades consist of three elements 1) the “slow charge shop charger,” 2) the charge station control electronics, and 3) the “fast charge” chargers. Specific details related to these upgrades, including the cost breakdown, are detailed below:

1) Shop Charger

The upgrade includes conduit and cable, the charger, travel, engineering, transformer, drawings, and shipping costs.

Foothill Transit Cost	\$46,000
Proterra Investment	\$24,000
Total Cost	\$70,000

2) Charge Station Control

The upgrade includes separating the charge station control into two separate sides so that a “fault” will only impact the side it corresponds to. There will also be upgrades to the “Bluetooth” wireless technology that will mitigate the electronic interference caused by the extensive use of technology by customers at the PTC.

Foothill Transit Cost	\$13,500
Proterra Investment	\$31,000
Total Cost	\$44,500

3) Chargers

This upgrade is comprised of the decommissioning and replacement of the two AV chargers with Eaton chargers on both sides of the station including the equipment, engineering, drawings, equipment, travel, installation, and commissioning. Removal of the four isolation chargers located outside of the Pomona Transit Center is included subject to Southern California Edison and City of Pomona approval during permitting process. The new chargers will have a built-in isolation transformer within the unit and will not be visible to the public.

Foothill Transit Cost	\$274,000
Proterra Investment	\$908,000
Total Cost	\$1,182,000



Executive Board Meeting – 06/28/13
Electric Bus Charger Upgrade
Page 3

Budget Impact

Funding for this project is included in the approved Fiscal Year 2014 Budget.

Sincerely,

A blue ink signature of Roland M. Cordero.

Roland M. Cordero
Director of Maintenance and Vehicle Technology

A blue ink signature of Doran J. Barnes.

Doran J. Barnes
Executive Director